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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/997,168	11/29/2001	John Frederick Porter	D1815-00053	4547

8933 7590 07/22/2004

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IP DEPARTMENT  
ONE LIBERTY PLACE  
PHILADELPHIA, PA 19103-7396

EXAMINER
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TORRES VELAZQUEZ, NORCA LIZ

ART UNIT	PAPER NUMBER
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1771

DATE MAILED: 07/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	09/997,168		PORTER, JOHN FREDERICK	
	<b>Examiner</b>		<b>Art Unit</b>	
	Norca L. Torres-Velazquez		1771	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 May 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-4 and 7-25 is/are pending in the application.
- 4a) Of the above claim(s) 12-25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 7-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

**DETAILED ACTION**

***Election/Restrictions***

1. Newly submitted claim 25 is directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: the multi-layer composite is grouped with group II as an intermediate product as restricted on action mailed 9/13/03.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claim 25 is withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

2. Claims 12-25 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 9/24/03.

3. The indicated allowability of claims 6 and 8 is withdrawn in view of further consideration of the prior art of record and the newly discovered reference(s) to FELL (US 5,316,604).

The Examiner had indicated that the prior art of record fails to teach a composite joint of the present invention in which the resin-impregnated fiber containing layers comprise a fabric with a basis weight of at least about 400 g/m<sup>2</sup> and the fiber-containing core layer fabric has a basis weight of at least 200 g/m<sup>2</sup>. Further, that there is no teaching for the use of polyolefin adhesive webs for assisting in lamination.

It is noted that SPIELAU does teach the use of core materials of synthetic thermoplastic fibers having a basis weight of about 100-400 g/m<sup>2</sup> that reads on the values claimed herein. (Refer to claim 1 and Col. 4, lines 27-30) With regards to the basis weight of the resin-

impregnated fiber-containing layers, the reference teaches the use of substrates based on glass fibers that exhibit preferably a basis weigh of about 70-350 g/m<sup>2</sup>. (Column 4, lines 17-22) It is the Examiner's position that the basis weight depends on the intended properties needed. For example, when the basis weight is increased, a thicker and stronger material is produced. Therefore, since Applicant's have not shown criticality to a basis weight being at least 400 g/m<sup>2</sup>, this limitation is recognized as result effective variable in this field of endeavor and it has been held that discovering optimum values would have been or result effective variables involves only routine experimentation.

Rejections based on the newly cited reference(s) follow.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-4 and 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over SPIELAU et al. (US 4,550,051) in view of PALMER et al. (US 4,368,234) and FELL (US 5,316,604).

SPIELAU et al. discloses a laminate or multilayered composited structure based on epoxy resin that provides the advantages of the glass-fiber reinforced epoxy resin laminates, such as high flexural strength, surface resistance, among others. (Column 2, lines 10-17) The reference discloses that one drawback of glass-reinforced epoxy resin laminates is poor drilling and punching and cutting capacity. (Column 2, lines 10-22) The reference teaches a laminate

construction constituting a bonded multilayered composite of resin-impregnated outer plies, containing a substrate of glass fibers with resin-impregnated core plies containing flat textile forms of synthetic thermoplastic fibers. (Column 2, lines 32-37) The reference teaches materials for the fibers of thermoplastic synthetic resins for the core plies that read on the present application. (Column 3, lines 19-54) In their drawings, the reference shows the laminate of their invention. With regards to the claimed toughness, tensile modulus, elongation at break, since Spielau employs the same materials, presumably it would possess the same properties. With regards to claim 8, it is noted that SPIELAU teaches the use of core materials of synthetic thermoplastic fibers having a basis weight of about 100-400 g/m<sup>2</sup> that reads on the values claimed herein. (Refer to claim 1 and Col. 4, lines 27-30) With regards to the basis weight of the resin-impregnated fiber-containing layers, the reference teaches the use of substrates based on glass fibers that exhibit preferably a basis weight of about 70-350 g/m<sup>2</sup>. (Column 4, lines 17-22) It is the Examiner's position that the basis weight depends on the intended properties needed. For example, when the basis weight is increased, a thicker and stronger material is produced. Therefore, since Applicant's have not shown criticality to a basis weight being at least 400 g/m<sup>2</sup>, this limitation is recognized as result effective variable in this field of endeavor and it has been held that discovering optimum values would have been or result effective variables involves only routine experimentation.

The reference fails to explicitly teach that the composite fiber reinforced plastic member is mechanically fastened to a substrate material to form a composite joint.

PALMER et al. discloses a woven material as a reinforcement for forming layered resin impregnated articles which are resistant to catastrophic damage from shock or local impacts as

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from a hard object. (Abstract) The reference teaches that the fiber reinforced resin or plastic articles have numerous applications, particularly as structural components in airplanes, ships and automobiles. (Column 1, lines 33-36) The reference addresses the problem of loss in panel strength by holes drilled in panels for attachment, e.g. of rivets, bolts, hinges, and the like. (Column 1, lines 45-49) The reference teaches that a portion of the high modulus fibers such as carbon in a high modulus high strength woven material are replaced by bands of low modulus fibers, e.g. of fiberglass or organic fibers, e.g. Kevlar, to form alternate bands or strips of high modulus fibers and adjacent alternate bands or strips of low modulus fibers. (Column 2, lines 31-36)

SPIELAU and PALMER fail to teach the use of a polyolefin adhesive.

FELL relates to a composite/sandwich structure that comprises a core with facing sheets or skins laminated to the core with a thermoplastic film or layer. (Col. 1, lines 12-21)

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to attach the laminate of SPIELAU to a substrate and provide with a mechanical fastener to form a joint with the motivation of producing an article that is resistant to catastrophic failure or damage from shock or hard local impact as disclosed by PALMER. (Column 1, lines 6-13). Further, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to use an adhesive film in the lamination of the facing sheets to the core motivated by the desire of strengthening the bonding of the layers and avoid delamination.

6. Claims 1-4 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over KRAUSE (US 4,451,528) in view of PALMER et al. (US 4,368,234) and FELL (US 5,316,604)

KRAUSE discloses a composite fiber reinforced plastic member and its method of manufacture to provide a high-strength light weight part particularly suitable for use as a structural component. The composite member comprises a body or web comprised of a glass fiber reinforced thermosetting resin matrix having having a carbonized fiber reinforced compatible resin. (Abstract) The reference teaches the use of components fabricated from reinforced synthetic resins in the aircraft, automotive, leisure products and industrial equipment industries. (Column 1, lines 11-14) The reference teaches that in order to increase the strength of the prior art's fiberglass reinforced plastic components, they proposed to mix higher strength fibers or filaments with the glass fibers or glass filaments effecting a further reinforcement thereof. Fibers such as carbonized fibers, boron fibers, steel fibers, asbestos fibers, and the like, have been suggested, of which highly carbonized or graphitized fibers are particularly suitable because of their exceedingly high-strength. (Column 1, lines 26-56) The reference teaches the use of layers or strata of graphite fiber reinforced layers sandwiched between two overlying glass fiber containing resin matrices to achieve the requisite reinforcement as the case may be. (Column 5, line 63 through Column 6, line 3). It is the Examiner's interpretation that this teaching equates to the laminate comprising a pair of composite layers containing a resin-impregnated glass fabric or mat and a core layer laminated between the pair of composite layers. With regards to the claimed toughness, high modulus and low modulus materials, it is noted that the Krause reference teaches the same material and the same structure so that it would have to have the same properties. With regards to claim 7, it is noted that the reference teaches mixing higher strength fibers or filaments with the glass fibers or glass filaments effecting a further reinforcement in the reinforced plastic components. (Above)

While KRAUSE teaches that the composite fiber reinforced plastic member is used in aircraft, automotive, leisure products and industrial equipment industries. The reference fails to explicitly teach that the composite fiber reinforced plastic member is mechanically fastened to a substrate material to form a composite joint.

PALMER et al. discloses a woven material as a reinforcement for forming layered resin impregnated articles which are resistant to catastrophic damage from shock or local impacts as from a hard object. (Abstract) The reference teaches that the fiber reinforced resin or plastic articles have numerous applications, particularly as structural components in airplanes, ships and automobiles. (Column 1, lines 33-36) The reference addresses the problem of loss in panel strength by holes drilled in panels for attachment, e.g. of rivets, bolts, hinges, and the like. (Column 1, lines 45-49) The reference teaches that a portion of the high modulus fibers such as carbon in a high modulus high strength woven material are replaced by bands of low modulus fibers, e.g. of fiberglass or organic fibers, e.g. Kevlar, to form alternate bands or strips of high modulus fibers and adjacent alternate bands or strips of low modulus fibers. (Column 2, lines 31-36) With regards to claim 2, it is noted that high modulus polymeric fiber such as Kevlar are considered equivalent to high modulus fibers such as graphite. (Refer to Column 2, lines 31-36)

KRAUSE and PALMER fail to teach the use of a polyolefin adhesive.

FELL relates to a composite/sandwich structure that comprises a core with facing sheets or skins laminated to the core with a thermoplastic film or layer. (Col. 1, lines 12-21)

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to attach the laminate of KRAUSSE to a substrate and provide with a mechanical fastener to form a joint with the motivation of producing an article that is resistant to




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catastrophic failure or damage from shock or hard local impact as disclosed by PALMER. (Column 1, lines 6-13). Further, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to use an adhesive film such as the one taught by FELL for lamination of the facing sheets to the core motivated by the desire of strengthening the bonding of the layers and avoid delamination.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Norca L. Torres-Velazquez whose telephone number is 571-272-1484. The examiner can normally be reached on Monday-Thursday 8:00-4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on 571-272-1478. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Norca L. Torres-Velazquez  
Examiner  
Art Unit 1771

July 14, 2004